

No. 14.— *New African Rodents.*

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IN a previous paper (Bull. M. C. Z., 1911, 54, p. 321-331) I have reported on the bats collected in British East Africa during the summer of 1909 by Dr. William Lord Smith, Mr. Gorham Brooks, and myself. In working out the other small mammals obtained by our expedition, several unnamed forms have been found and these, as well as a dormouse from the Cameroon, presented by Dr. Thomas Barbour, are described as new. The new mammals obtained in East Africa are all from the northern Guaso Nyiro, northwest of Mt. Kenia, where as a result of the arid plateau conditions many of the species are represented by local forms of less intense coloration than their relatives of the coastal lowlands. A number of these have already been described by Thomas, Dollman, and others.

The recent intensive study of the small mammals of Africa has shown not only a surprising wealth of species but also an immense amount of local varieties of these, which are the result of response to the greatly diversified physical conditions. This was strongly impressed upon us even in the comparatively short circuit covered to the north and west of Mt. Kenia, and thence to Nairobi and the coast. Dry rocky and bushy country succeeds fertile and well watered lowland, papyrus swamp gives place to broad flat plains, well grassed perhaps, or again, arid and grown up with xerophytic vegetation, according to the character of the soil. Crossing a divide brings one into deep wet forests whose stillness awes even the lightsome Swahili porters into silence, while the higher mountain peaks even under the equator reach an altitude of everlasting snow with alpine meadows below their glaciers. Each variety of country has its characteristic set of inhabitants and these again differ locally.

Among the species here described, the most interesting is perhaps a naked burrowing rodent of the genus *Heterocephalus*, hitherto unrecorded outside of Abyssinia and Somaliland. It is another of those northeastern types that find their southwestern limits along the Guaso Nyiro. From this locality also, a dormouse (*Graphiurus*) is apparently for the first time recorded. It seems to be a local race confined to the scanty tree growth which forms a narrow border along the streams. The dark colored, small eared pygmy dormouse from the Cameroon is also of unusual interest.

GRAPHIURUS MICROTIS GRISEUS, subsp. nov.

Type.—Skin and skull, M. C. Z., 8244, adult male, from the northern Guaso Nyiro River, British East Africa; collected 25 July, 1909, by Glover M. Allen. Altitude about 4000 feet.

General Characters.—A medium sized grayish species, apparently nearly allied to *G. raptor* of Mt. Kenia, but much less buffy and with paler feet and belly. From *G. m. saturatus*, described from Mt. Elgon at 9000 feet, it differs in being paler gray above and with dark gray instead of pure white metatarsal area.

Description.—Dorsal surface of head, body, and forearms of a general smoke gray in color, darkest on the mid-dorsal area of the back, due to the predominance of dark hairs; on the sides of the neck and body the color is lighter, nearly a pale wood-brown, produced by the greater admixture of buffy-tipped hairs; the forehead and muzzle between the eyes are nearly clear gray. A blackish patch is present between the anterior corner of the eye and the base of the vibrissae, and a narrow blackish ring encircles each eye. Hands and feet white, except that the tarsal joint and the median portion of the metatarsals are slaty gray. Entire ventral surfaces of the limbs and body, including the throat, and cheeks below the eye are dull whitish, everywhere darkened by the prominent slate bases of the hairs, except at the chin. The tail is as long as the body, flattened and narrow, and approaches a dark fawn color in general tone, slightly lighter below. A few white-tipped hairs form an inconspicuous fringe and tip. Ears large, thinly covered with short brownish hairs. The chest is stained a pale reddish.

Skull.—The skull appears to be about the size of that of *raptor*, but narrower. The bullae are large, and are in contact antero-internally with the hamular processes of the pterygoids. The nasals are broad, their outer borders parallel, not tapering posteriorly, and almost squarely truncate at their proximal end, where they are slightly exceeded in backward extension by the ascending branch of the premaxillary. The dorsal root of the zygomatic portion of the maxillary is slightly in advance of the ventral root.

Measurements.—The type measured in the flesh: head and body, 82 mm.; tail, 79; hind foot (c. u.), 18; ear from meatus, 13.5. A second specimen from the same locality, an adult female, measured: head and body, 91; tail (broken); hind foot, 16.5; ear, 16.

The skull of the type measures: greatest length, 27; basal length,

21.5; palatal length, 10; nasals, 9.7; zygomatic width, 14.8; inter-orbital constriction, 4.3; width of palate outside premolars, 5.8; upper cheek teeth (alveoli), 3.5; length of bulla, 8.8.

Remarks.— Three specimens of this beautiful dormouse were taken in the arid country along the Guaso Nyiro. One was trapped at the foot of a large hollow tree by the stream, a second among some loose stones at the margin of the river, and the third, an immature example, was caught by the Swahili boys in a tree, by the water's edge, whose dead limbs they were breaking for firewood. Since tree growth, except for the scattered thorn trees, is largely confined to the immediate banks of streams, it follows that this arboreal species is to be found mainly along the waterways.

The adult female referred to is slightly albinistic, with a white spot medially between the ears.

After a careful study of the published descriptions of African dormice, I have been unable to refer these specimens to any species hitherto known. It is perhaps best considered a subspecies of *G. microtis*, but is also apparently allied to *G. raptor* of which I obtained specimens at timber line on Mt. Kenia.

GRAPHIURUS SCHWABI, sp. nov.

Type.— Skin and skull, M. C. Z., 8607, from Kribi, Cameroon, 1911. Collected by Rev. George Schwab and presented by Dr. Thomas Barbour.

General Characters.— A small dark gray species, with the orbital rings scarcely distinguishable from the general dark slaty color of the head. Feet except the distal portion of the toes entirely dusky. Tail white bordered, ears small.

Color.— Pelage loose and full. Entire dorsal surface of the head, neck, body, forearms, and fore and hind feet except the terminal one or two phalanges of the toes a uniform "mouse gray" (Ridgway); a slightly darker, blackish ring is faintly to be distinguished around each eye, but there is no darker patch on the muzzle. The tail is similar but slightly tinged with drab; many of the tail hairs on the dorsal surface are provided with long white points that tend to form a border at the sides and tip. The tail is slightly distichous, with the ventral hairs more flattened than those of the dorsal side. The color of the sides fades into the general smoky gray of the ventral surfaces, which, including the upper lips, and sides of the face below the eye and ear, are whitish. All the hairs of these parts are blackish slate

at their bases, with a short whitish tip so that the slate everywhere shows through and darkens the entire under surface of the body and limbs, becoming especially dominant posteriorly.

The ears seem unusually small, but may have shrunken unduly. They are covered with minute appressed hairs visible with a hand lens only. Terminal one or two phalanges of the toes whitish.

Skull.—The skull presents several peculiarities not observed in those of other species examined. The rostrum tapers evenly from the zygomata nearly to a point, as a result of the lateral compression of the tip of the muzzle; the nasals are nearly flat anteriorly, instead of being expanded to form part of the lateral portion of the rostrum; at about half their length they contract and rapidly taper to a blunt point posteriorly, ending about on a level with the back of the first upper molar. The palate terminates in a slight median projection instead of having a smoothly rounded boundary. The upper pre-molar is very small, with about one half the crown area of the posterior-most molar. Bullae not especially prominent.

Measurements.—The dried skin, well made, measures approximately as follows:—head and body, 74 mm.; tail, 64; hind foot, 18.5; (s. u., 17.8); ear (dry), 7. The skull measures: greatest length, 26; basal length, 20; palatal length, 10; nasals, 10.2; diastema, 6; zygomatic width, 12; mastoid width, 12.9; upper cheek teeth, (alveoli), 3.5.

Remarks.—This very dark dormouse seems most nearly to resemble *G. smithii* from the Victoria Nyansa, Speke's Gulf. It agrees with that species in its uniform dark grayish, but differs in having dark instead of white feet; the tail also as well as the body color seems less dark, judging from Thomas's description. The very small naked ear is also a point in common. Possibly *G. schwabi* is the West African representative of *G. smithii*. The thick full pelage, uniformly dark coloration, even on the feet, and the cranial characters readily mark this well-defined species which I have named after its discoverer, Rev. George Schwab.

THAMNOMYS OCHRACEUS, sp. nov.

Type.—Skin and skull, M. C. Z., 8126, from the Meru River, near the junction with the northern Guaso Nyiro, British East Africa, adult male, collected 8 August, 1909, by Glover M. Allen.

General Characters.—A small pallid form, apparently allied to *T. macmillani* from north of Lake Rudolf, and *T. oblitus* from Voi, but

smaller than the former and apparently a much brighter tawny ochraceous and buff instead of "dark olive-buff"; from the latter it differs in paler coloration above, as well as below, where it lacks the distinct tinge of strawcolor; moreover it is a shorter tailed animal.

Description.—Dorsal area from crown to root of tail, tawny ochraceous, brightest on the rump, and slightly darkened in the middle of the back by scattered black hairs; base of the tail clear ochraceous. The muzzle between the eyes, the sides of the face, cheeks, forearms, and sides of the body, grayish washed with buffy and slightly darkened by an admixture of scattered black hairs. A narrow line of clear cream-buff due to the overlapping of the buffy tips of the particolored hairs of the sides, sharply bounds the ventral area, which is pure white to the roots of the hairs including those of the sides of the muzzle nearly to the level of the eyes, the throat, belly, and insides of the legs. The wrists, hands, and feet are clear buffy, the toes white. Ears clothed with short tawny ochraceous hairs. Vibrissae black. Tail scantily covered basally with minute buffy hairs, intermingled above with a few blackish hairs, the latter at length predominating above and below so that the terminal third is dark, nearly Prout's brown; the longest of these hairs do not exceed 3 mm.

Skull.—The skull is small and light, with comparatively short rostrum. There is no incipient postorbital process, but the orbit is bordered dorsally by a line of beading that terminates abruptly about a millimeter anterior to the fronto-parietal suture. The incisive foramina are broad and long, reaching to the level of the first molar. The postero-internal cusp of the first and second molars is undeveloped, but as in the less typical members of the genus, is represented by a ridge extending back to the hinder margin of the third tubercle of the median series. The anterior edge of the zygomatic plate is vertical and straight, and only slightly notched above.

Measurements.—The type measured in the flesh: head and body, 104 mm.; tail, 149; hind foot, 23; ear from meatus, 15. Skull: greatest length, 27.5; basal length, 22.6; palatal length, 13; nasals, 9.2; zygomatic width, 14; interorbital constriction, 4.6; mastoid width, 12; width of palate outside first molar, 5.4; length of incisive foramina, 6; length of molar row (alveoli), 4.5; diastema, 6.8.

Remarks.—This is probably a pallid and slightly smaller race of *T. oblitus* from near the coast at Voi. The darker coloring and longer tail of this coastal species, however, will readily separate it. From *T. macmillani* from the north of Lake Rudolf, it differs equally in less dark color, and slightly smaller size, as well as in lacking the prominent

gray shoulder patches. The type and only specimen was trapped among small trees bordering the streamlet known as the Meru River, which here flows through the arid country from Mt. Kenia, to join the Guaso Nyiro.

HETEROCEPHALUS STYGIUS, sp. nov.

Type.—Alcoholic female, adult, with dry skull, M. C. Z., 12470, from Neumann's Boma, on the northern Guaso Nyiro River, British East Africa; collected 6 August, 1909, by Glover M. Allen.

General Characters.—Externally much like *H. glaber* but with a slightly longer tail; nasals more than one third the occipito-nasal length, zygomata evenly bowed out anteriorly, as in *dunni*; coronoid process short, its summit just reaching a line drawn from the tip of the condyle to the point of the incisor. Third upper molariform tooth markedly the smallest.

Description.—General external appearance as in *H. glaber*. Skin dark pigmented but naked except for scattered bristle-like hairs, which are most numerous about the mouth. These are short on the front of the muzzle and increase in length on its sides. The longest are a group of three hairs on the side of the face below and just behind the eye. There are a few short hairs on the back, belly, legs, and tail, and a fringe of stiff short bristles on the margins of the toes except on the outer side of the fifth digit of the pes. All these hairs are unpigmented. On the inner side of each thigh is a small glandular patch. The ear conch is vestigial but projects about a millimeter from the side of the head.

Skull.—The skull is similar to that of *H. glaber* as figured ($\times 2$) by Thomas (Proc. Zool. soc. London, 1885, pl. 54, fig. 5) except that the nasals are longer in proportion exceeding one third of the occipito-nasal length of the skull, and the zygomata are more evenly bowed out in their anterior portion, thus approaching *H. dunni*. The sagittal crest is well marked and extends forward from the occipital ridge for about one half the length of the braincase whence the supra-orbital ridges diverge to the anterior corner of each orbit.

The teeth appear to differ slightly in their conformation from those of *H. glaber*, if the description and figures of Parona and Cattaneo (Ann. Mus. civ. Genova, 33, pl. 13, figs. 7, 8) are accurate. All the upper molariform teeth are figured as of essentially the same size in *H. glaber* though described as diminishing slightly from the anterior to the posterior end of the series, and as having a single external

enamel fold each (Thomas, 1885). In *H. stygius*, however, the last (or third) upper molar is much the smallest, rounded in outline, and of about one half the crown area of the tooth next anterior. The first and second molariform teeth are subequal, the former with a well defined sulcus on the inner side opposite the external fold, marking a slight infolding of the enamel. Of the inferior molariform teeth, the second is the largest; the first and third are of nearly equal length antero-posteriorly, but the former is much the narrower. Each has an external and an internal enamel fold forming thus a rather flattened figure 8 pattern. Parona and Cattaneo show but one sulcus on the external side of the first tooth in *H. glaber* but their figure is probably incorrect as Thomas states that each has an external and an internal fold.

The coronoid process of the mandible is short as in *H. dunni* and *Fornaria phillipsi*, and just reaches a line joining the condyle with the point of the incisor. The incisive foramina are anterior to the maxillary bone and their posterior end just reaches the premaxillo-maxillary suture.

Measurements.—The type was measured when collected, as follows (measurements of *H. glaber* are added in parentheses): head and body, 98 mm. (95); tail, 47, (39); hind foot, 22 (21.2).

The skull: occipito-nasal length, 21 (21.5); nasals, 8.3 (7.8); basal length, 20 (21.5); palatal length, 12.6 (13.6); zygomatic width, 17.8 (18.3); mastoid width, 12.5 (12); interorbital constriction, 6 (6); mandible from condyle to anterior base of incisor, 16.7; upper cheek teeth (alveoli), 3.4; lower cheek teeth (alveoli), 3.

Remarks.—The single specimen on which this species is based was taken at our camp near Neumann's Boma on the (northern) Guaso Nyiro River, near its northernmost bend. It was captured alive by one of our Swahili boys who found it running about near the camp fire at night. He said that at first it had come near where he was sitting, but he paid no attention until shortly it returned, and he caught it. I have found no mention of such above-ground activity on the part of this animal. When handled it gave vent to its displeasure in a few soft coughs, but did not attempt to bite. This interesting specimen is the first of its genus to be recorded south of Somaliland, and the known range is thus considerably extended to the south and west. The soil along the river valley where it was captured, is light and sandy, and suitable for burrowing. The elevation at this point is probably 3000 to 4000 feet, practically at the upper limit of growth of the ivory-nut palms. No other sign of its

presence was discovered, so that it is probably local or uncommon here. It is another example of the arid-country Abyssinian and Somaliland types whose range extends southward to the Guaso Nyiro region.

Of *Heterocephalus glaber* specimens are recorded from Shoa, southern Abyssinia, the type locality (Rüppell); Gerlogobie, Ogardain, in Somaliland (Thomas); the Errer (or Harar) region, of Italian Somaliland and from Milmil (Rhoads).

In its rounded zygomata and low coronoid process, this species differs from *H. glaber* and resembles *H. dunni* and *Fornaria phillipsi*, but from both these last it is at once distinguished by its larger molariform teeth, its size and proportions. Intergradation with *H. glaber* may be expected when specimens are obtained from intermediate localities.

TATERILLUS MELANOPS, sp. nov.

Type.—Skin and skull, M. C. Z., 8132, male, from the arid plains by the Meru River, a branch of the northern Guaso Nyiro, British East Africa, collected 11 August, 1909, by Glover M. Allen.

General Characters.—A medium sized species, probably related to *T. osgoodi* of the coastal lowlands (type from Voi), but paler above, and with the black facial marking restricted to a narrow ring about the eye and an elongate spot behind it, and below the ear.

Description.—Dorsal area, including a narrow line from the muzzle, between the eyes, the entire crown, nape, and back, ochraceous buff darkened by the uniform admixture of fine black tips to the hairs; the color is slightly warmer on the rump where the pale terminal ring of the hairs becomes nearly ochraceous. Sides of the muzzle, including a narrow stripe up over each eye, sides of neck and body, and the thighs, nearly clear ochraceous buff with a few scattering hairs entirely black. The hairs of the dorsal area have long slaty bases with short terminal ochraceous buff rings, while those of the flanks are slightly paler with much longer (4 mm.) ochraceous buff tips which fade basally to whitish. On the sides of the muzzle, however, and along the lateral border of the body, the bases of the buff hairs are wholly pure white. A whitish spot is present above the eye, extending to the base of the ear, and another at the posterior base of the ear. A narrow black ring surrounds the eye and is continued posteriorly as an elongate black patch below the ear. Hands and feet white above, with a line of buffy on metacarpals and metatarsals. Ears

scantly clothed with minute pale hairs and obscurely edged with blackish. Proximal third of the tail like the back, scarcely paler below; terminal half or two thirds above and below clad with dark hairs, nearly seal-brown, which lengthen progressively toward the tip, especially above, forming a terminal tuft, whose longest hairs measure about 15 mm. Ventral surfaces of body and limbs pure white to the roots of the hairs except about the ankles where is a ring of hairs seal-brown to their bases.

Skull.—The posterior palatal foramina extend, as in other members of this genus, from the level of the front of the first molar to the middle of the second. The upper incisors have a distinct groove slightly external to the center. The nasals are exceeded by the posterior prolongations of the premaxillaries and are squarely truncate proximally instead of tapering to a median point.

Measurements.—The type measured in the flesh: head and body 122 mm.; tail, 165; hind foot (c. u.), 33; ear from meatus, 18. The skull measures: greatest length, 36.2; basilar length, 26.5; zygomatic breadth, 18; nasals, 14; interorbital constriction, 7; mastoid breadth, 16.5; diastema, 9; upper molar series, 5; audital bullae, 10 by 5.5.

Remarks.—This is a pale form from the arid plateau to the north and west of Mt. Kenia, bordering the Guaso Nyiro. It seems related to the rufous *T. osgoodi* of the coast or perhaps to *T. tenebricus* but differs in size, color, and the character of the black markings of the head from all of these. It seems to represent a distinct species from *T. nubilus illustris*, also found in the Guaso Nyiro region, which in addition to smaller size, differs notably in having practically no black cheek-patch.